Safety & Health for the Commonwealth

MASSACHUSETTS Division Of Occupational Safety
Asbestos & Lead Program

Summer 2002 *Volume I, Issue V*

Checklist for Mold Remediation Schools and Commercial Buildings

The USEPA Office of Air and Radiation Indoor Environments Division has published a guide entitled "Mold Remediation in Schools and Commercial Buildings". This checklist, taken from the guide, highlights the key parts of a school or commercial building remediation plan. Copies of the guide are available by contacting the Indoor Air Quality Information Clearinghouse at 1-(800) 438-4318 or on the world wide web at: www.epa.gov/iaq.

Questions to Consider Before Remediating

• Are there existing moisture problems in the building?
• Have building materials been wet more than 48 hours? (see guide text for more info.)
• Are there hidden sources of water or is the humidity too high (high enough to cause condensation)?
• Are building occupants reporting musty or moldy odors?
• Are building occupants reporting health problems?
• Are building materials or furnishings visibly damaged?
• Has maintenance been delayed or the maintenance plan been altered?
• Has the building been recently remodeled or has building use changed?
• Is consultation with medical or health professionals indicated?

Avoid Exposure to and Contact with Mold

•Use Personal Protective Equipment (PPE)

Investigate and evaluate moisture and mold problems

⇒ Assess size of moldy area (square feet)
⇒ Consider the possibility of hidden mold
⇒ Clean up small mold problems and fix moisture problems before they become large problems
⇒ Select remediation manager for medium or large size mold problem
⇒ Investigate areas associated with occupant complaints
⇒ Identify source(s) or cause of water or moisture problem(s)
⇒ Note type of water-damaged materials (wallboard, carpet, etc.)
⇒ Check inside air ducts and air handling unit
⇒ Throughout process, consult qualified professional if necessary or desired

Communicate with building occupants at all stages of process, as appropriate

⇒ Designate contact person for questions and comments about medium or large scale remediation as needed

Plan remediation

⇒ Adapt or modify remediation guidelines to fit your situation; use professional judgment
⇒ Plan to dry wet, non-moldy materials within 48 hours to prevent mold growth (see text of guide for more info)
⇒ Select cleanup methods for moldy items (see Table 2 and text)
⇒ Select Personal Protective Equipment – protect remediators (see text of guide for more info)
⇒ Select containment equipment – protect building occupants (see text of guide for more info)
⇒ Select remediation personnel who have the experience and training needed to implement the remediation plan and use Personal Protective Equipment and containment as appropriate

Remediate moisture and mold problems

⇒ Fix moisture problem, implement repair plan and/or maintenance plan
⇒ Dry wet, non-moldy materials within 48 hours to prevent mold growth
⇒ Clean and dry moldy materials (see text of guide for more info)
⇒ Discard moldy porous items that can't be cleaned (see text of guide for more info)

For details, see text of *Mold Remediation in Schools and Commercial Buildings*. Please note that this checklist was designed to highlight key parts of a school or commercial building remediation and does not list all potential steps or problems.

For More information about mold and Indoor Air Quality Issues visit the Division of Occupational Safety Indoor Air Quality Program web site at http://www.state.ma.us/dos or contact us at (617) 969-7177 .

HVAC Systems and Building Maintenance Guidelines

xperience has shown that HVAC system and uilding maintenance can be important factors ffecting indoor air quality. The following are nportant parameters that need to be ldressed:

VAC System Maintenance-The various omponents of an HVAC system should be aintained on a regular basis. This can be done y in-house personnel or contracted to an utside company. Documentation should be ade of any HVAC maintenance. A checklist ould show each maintenance item and the cation that it was performed. This aintenance procedure should be compared to e maintenance frequency that is commended by the manufacturer.

VAC controls are the brain function of the VAC system. They tell the HVAC system hen to turn on such things as the heat or e air conditioning. HVAC controls formation should be maintained on-site. hey should be available to such people as e maintenance staff. The operating anual would include information on aintenance and calibration of the controls.

he clock settings for controls should be ecked periodically. Power failures and ay light savings time changes are times hen settings may need to be adjusted.

ir balancing records should also be kept for e building. Information on the latest alancing report should be on file. This report ovides vital information on supply and return r volumes to an area. Air balancing should be valuated whenever the occupants report gnificant indoor air quality problems.

he "final" version of original design drawings y the HVAC engineer should be available. his would include information on the amount supply air in cubic feet/minute(CFM) that ere calculated be delivered to an area, as well the type of occupancy for which the ntilation system was designed.

roper access should be provided around ntilation equipment for routine maintenance d inspection which should include filter placement and fan belt adjustment and placement.

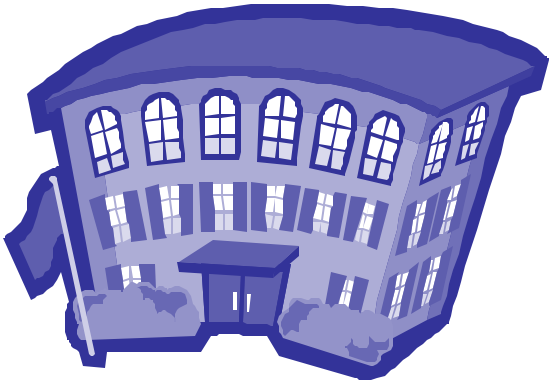
he items that should be checked and cleaned clude (but are not limited to):

HVAC grilles-The supply and return grilles in an occupied space can reveal a significant amount about building custodial services

An assumption can be made that when there is water damage or condensation problems in a building, there is bound to be occupant complaints regarding moldy conditions.

Grilles that have a layer of dirt/debris on them should be wet wiped with a 1% bleach solution; and, the cause of the mold should be investigated and remedied. Any nearby ceiling tiles that are contaminated should be disposed of and replaced. Common 2' x 4' ceiling tiles are inexpensive to replace.

Supply grilles that have a layer of dust indicate that HVAC filters are not filtering



supply air properly. A more efficient filter should be used to better filter incoming air.

Grilles that have a layer of dust on the return (exhaust grilles) indicate the need for better housekeeping. This is often an indication that floor/carpets are not being cleaned properly. This can often be remedied by more frequent vacuuming/floor cleaning.

Drain pans-Drain pans must function properly. They must be checked to determine if they drain adequately and if they have been installed with adequate sloping. A quick visual inspection can determine if they are operating properly. Plugged drain pans can be a significant source of microbial contamination in a building.

Outdoor air intake louvers-These should be inspected for cleanliness and operation at least twice a year. Bird screens should be installed where past infestation problems by birds have been a problem.

Cooling towers-These should be treated according to the manufacturer's directions. The cooling towers should be treated to control the growth of microbes. Untreated cooling towers can contribute to the growth of respirable microbes such as Legionella.

The following items are additional items of an HVAC system that should be cleaned and checked on a schedule that is recommended by the manufacturer. In the absence of a manufacturer's schedule, a once a year evaluation should be performed of the following components:

Fans ,Outdoor air intake areas, Plenums, Heating coils and heat recovery coils, Cooling coils and evaporative coolers, Humidifiers Air flow measuring stations

Filters-Filters should have a minimum efficiency of 25- 30%. Maintenance should strive to purchase filters with an efficiency of 60%. Inexpensive, furnace type filters should not be installed in a HVAC system. Often, these filters do not have a listed efficiency rating.

Pleated, accordion type, filters are a better choice than flat filters. They provide more surface area for filtering out particles.

High efficiency filters may need to be purchased and installed when there are significant number of complaints regarding indoor air quality. These filters are designed to filter at greater than 65% efficiency for particles down to 0.3 microns.

An HVAC system should be able to accommodate high efficiency filters. The static pressure in a system should not build up to the point where the addition of high efficiency filters causes a HVAC system to shut down.

Filters should be changed on a regular basis. This should be a minimum of twice a year. If the filters are extremely dirty before the six month period, they should be changed more frequently (i.e. quarterly).

A build up of dirt/dust on a filter ("dust cake") actually helps a filter to work more

continued on page 5

Reader Survey

Please take a moment to complete our survey so that we may better serve you

Reader Response Form

Did you find this newsletter useful?

_____

_____

_____

_____

I would like more information about:

- ☐ Indoor Air Quality
- ☐ Asbestos and AHERA
- ☐ Lead in Renovation and Construction Issues
- ☐ Other *(please list)*

_____

Do you have a specific question/topic you would like us to address?

_____

_____

I would like to be contacted for the next available asbestos

- ☐ Asbestos Awareness Training
- ☐ Asbestos-Associated Project Worker
- ☐ AHERA Designated Person Training

☐ Please add my name to your mailing list.

Name _____

Address _____

_____

Phone _____

Please FAX us at (617) 727-7581 or Mail to: **Division of Occupational Safety**
Asbestos & Lead Program
1001 Watertown Street, W. Newton, MA 02465
Att. Newsletter

Helpful Telephone Numbers

Division of Occupational Safety

For questions regarding indoor air quality or to request an indoor air quality investigation contact :

The Occupational Hygiene/Indoor Air Quality Program
Phone: 617-969-7177
Fax: 617-727-4581

For help with Asbestos, Lead or AHERA related matters or to request an asbestos or lead assessment, contact:

The Asbestos & Lead Program
Phone: 617-969-7177
Fax: 617-727-7581

For problems or assistance with the Massachusetts Asbestos or Lead Abatement Regulations, contact our field offices:

Asbestos & Lead Licensing and Enforcement Program
Complaints: 1-800-425-0004

Regional Offices

Boston	617-727-7047
West Newton	617-969-7177
Haverhill	978-372-9797
New Bedford	508-984-3562
Westborough	508-616-0461
Springfield	413-781-2676
Pittsfield	413-448-8746

Creating Healthy Schools in Massachusetts
Working Together, Finding Solutions

September 25, 2002
Wyndham Hotel, Westborough MA

A *free* full day comprehensive conference (includes lunch) addressing environmental and occupational health and safety issues in schools

- Learn how to build an environmental health and safety team for your school
- Learn how to audit your facility for environmental and occupational hazards
- Learn how to prioritize issues and how to comply with applicable regulations

Conference will include workshops addressing such issues as:

Chemical Management
Indoor Air Quality
Lead in Drinking Water
Asbestos
Energy Efficiency
Construction and Renovation Issues
Building Commissioning
Fire safety
Laboratory Safety
Integrated Pest Management
Facilities Maintenance
Environmentally Preferable Products
Recycling
Underground Storage Tanks

A TEAM APPROACH

Suggested Members of the Team include:

Teachers
School Nurses
Fire Department Staff
School Business Officials
School Facilities Staff
Town Health Agents
School Administrators
Community Advocates
Parent/School Council Members
School Committee Members
School Maintenance Staff

Participants will receive a Tools for Schools Kit, a full notebook of resource materials, applicable regulations and follow-up assistance

Start by reserving space for your school or school system to participate by calling Nancy Comeau at the Massachusetts Division of Occupational Safety at 617-969-7177. (limited to 35 schools or school systems).

Recruit your team by the end of this school year, enjoy your summer, and come prepared to start fresh in September!

Sponsored by the Massachusetts Division of Occupational Safety in conjunction with the Multi-agency Task Force on Toxics in Schools (MATS) with funding from the EPA

HVAC (cont.)

efficiently. A dust cake will build up a short period of time after a new filter is installed. Filter efficiency is actually a function of the filter plus the dust cake.

A visual inspection of the dirty filter should be taken to determine what type of particles the filter is trapping to try to minimize entrance of the contaminants into the ductwork. For example, the presence of feathers would indicate that birds have been in the ductwork. Chunks of fiberglass may indicate that fiberglass lined ducts are breaking apart.

The racks that hold filters should have a snug fit against HVAC duct work. They should minimize the bypass of air around filters.

Humidifiers-Humidifiers for the purpose of increasing atmospheric moisture are not recommended. This includes the installation of portable humidifiers to an occupied area. Humidifiers can have a negative impact on indoor air quality. This usually results from a humidifier not being properly maintained and/or installed.

Humidifiers, especially ones labeled as "ultrasonic," can significantly contribute to the growth of microbes in indoor spaces.

Building Maintenance-Custodial activities should be performed when building occupancy is at its lowest level. This is to prevent occupants from being exposed to potentially irritating custodial chemicals and airborne dust.

Building maintenance services should have an active Right-To-Know program. This program should include maintaining all MSDS's on site for any custodial chemicals.

Charter Schools: You Must Submit your AHERA Management Plans!

The Environmental Protection Agency (EPA) under the Asbestos Hazard Emergency Response Act (AHERA) requires each elementary and secondary school to perform an inspection of asbestos-containing building material (ACBM) and to prepare an asbestos management plan. The AHERA regulations further require a reinspection of the ACBM at least once every three years.

The Commonwealth of Massachusetts, Department of Labor and Workforce Development, Division of Occupational Safety, Asbestos and Lead Program has been appointed as the State Designee for the responsibilities of enforcement of these requirements.

In January, the Division of Occupational Safety began conducting targeted compliance for Charter Schools under the Asbestos Hazard Emergency Response Act (AHERA). In the first round of audits, DOS has found approximately **70%** of Charter Schools in the Commonwealth had failed to have an asbestos management plan prepared and submitted to this office.!

The Asbestos and Lead Program continues to offer assistance in answering any questions or to offer advice in development of the Management Plan and asbestos record keeping requirements.

Schools must send their completed Management Plan to this Division prior to use of the building for approval. The management plan will be in effect 90 days after submission of the plan to this office unless the plan is disapproved.

The penalty for failure to comply provides civil penalties of up to $5,000 per day when a Local Education Agency (LEA) fails to conduct inspections consistent with AHERA.

Charter Schools that need assistance in complying with these requirements should contact the Asbestos and Lead Program at (617) 969-7177 for further information.

Carpeting-Carpets should be vacuumed at the end of each day for areas that are regularly occupied. Steam cleaning via a steam extraction method should be performed whenever the carpets are visibly dirty. This should be done at least twice a year.

If carpets are worn and have exceeded their useful life, both the carpets and their padding should be removed and replaced.

Carpets and carpet backing should be kept as dry as possible to prevent microbial growth. Carpets that are repeatedly wet should be removed. Non-porous flooring such as tile should be investigated in these cases.

Dusting-Dusting should be performed at least once a week of all office furnishings. Furnishings include desktops, file cabinets, bookcases, lights, and HVAC grilles.

Floors-Floors, and other non-porous flooring, should be swept at least once a day. Floors should be swept during non-occupied hours to minimize dust exposure.

Vacuuming and wet mopping can be substituted for sweeping. Vacuuming should be performed with a HEPA type vacuum cleaner.

Garbage-Lunch room garbage and trash in waste cans should be taken out each night.

For more information contact the Indoor Air Quality Program at DOS at (617) 969-7177

Division of Occupational Safety

1001 Watertown Street
West Newton, MA 02465

Inside this issue:

Checklist for Mold	*1*
HVAC Maintenance	*2*
Reader Survey	*3*
Health Schools Seminar Announcement	*4*
Charter School Update	*5*

Mission Statement

The Division of Occupational Safety (DOS) mission is to prevent occupational injuries and illnesses in Massachusetts. We work with employers, employees, unions and government officials to create safe and healthy work environments through site visits, analytical testing, and the dissemination of information.

Helpful Reference Sources on the Web

www.state.ma.us/dos - MA Division of Occupational Safety, Asbestos/Lead Program, Occupational Hygiene/Indoor Air Quality Program site. Contains information on all the DOS programs and services.

www.epa.gov -US Environmental Protection Agency. Contains many links to information on IAQ issues, asbestos, lead, toxins, etc. as well as guidance documents, press releases, frequently asked questions.

www.osha.gov –Occupational Safety & Health Administration. Contains guidance on OSHA compliance, including directives and interpretations on worker health and safety. Model programs available for Respiratory Protection, PPE, Hazcom, etc..

www.cdc.gov/niosh. –National Institute for Occupational Safety and Health. NIOSH conducts research for various government agencies, provides epidemiological studies, and provides recommendations for occupational safety and health.

Funded in part under a grant from the USEPA Region 1